



TENNESSEE DEPARTMENT OF

EDUCATION
FIRST TO THE TOP

Web Site Development

Primary Career Cluster:	Information Technology (IT)
Consultant:	Casey Haugner Wrenn, (615) 532-4879, Casey.Haugner@tn.gov
Course Code:	6101
Prerequisite(s):	<i>Web Design Foundations</i> (6100)
Credit:	1
Grade Level:	11-12
Graduation Requirement:	This course satisfies one of three credits required for an elective focus when taken in conjunction with other IT courses.
Programs of Study and Sequence:	This is the third course in the <i>Web Design</i> program of study.
Aligned Student Organization(s):	Future Business Leaders of America (FBLA) www.fblatn.org Sarah Williams, (615) 532-2829, Sarah.G.Williams@tn.gov Skills USA: http://www.tnskillsusa.com Brandon Hudson, (615) 532-2804, Brandon.Hudson@tn.gov Technology Student Association (TSA): http://www.tntsa.org Amanda Hodges, (615) 532-6270, Amanda.Hodges@tn.gov
Coordinating Work-Based Learning:	Teachers are encouraged to use embedded WBL activities such as informational interviewing, job shadowing, and career mentoring. For information, visit http://tn.gov/education/cte/work_based_learning.shtml .
Available Student Industry Certifications:	CIW Internet Business Associate Certification
Dual Credit or Dual Enrollment Opportunities:	There are no known dual credit/dual enrollment opportunities for this course. If interested in developing, reach out to a local postsecondary institution to establish an articulation agreement.
Teacher Endorsement(s):	070, 203, 204, 230, 231, 232, 233, (042 and 043), (042 and 044), (042 and 045), (042 and 046), (042 and 047), (042 and 077), (042 and 078), (042 and 079), (043 and 044), (043 and 045), (043 and 046), (043 and 047), (043 and 077), (043 and 078), (043 and 079), (044 and 045), (044 and 046), (044 and 047), (044 and 077), (044 and 078), (044 and 079), (045 and 046), (045 and 047), (045 and 077), (045 and 078), (045 and 079), (046 and 047), (046 and 077), (046 and 078), (046 and 079), (046 and 047), (046 and 077), (047 and 079), (047 and 077), (047 and 078), (077 and 078), (077 and 079), (078 and 079), 153, 157, 311, 435, 436, 470, 475, 476, 477, 516, 519, 582, 583, 595, 543, 711, 740

Required Teacher Certifications/Training:	CIW Association Foundation Certification or CIW Site Designer Industry Certification. For endorsements 037, 041, 055, 056, 057, 203, 204, 311, 434, 435, 436, 475, 476, 153 CIW Web Design Specialist Industry Certification required in 2015-16.
Teacher Resources:	http://www.tn.gov/education/cte/InformationTechnology.shtml

Course Description

Web Site Development builds on the skills and knowledge gained in *Web Design Foundations* to further prepare students for success in the web design and development fields. Emphasis is placed on applying the design process toward projects of increasing sophistication, culminating in the production of a functional, static website. As students work toward this goal, they acquire key skills in coding, project management, basic troubleshooting and validation, and content development and analysis. Artifacts of the work completed in this course will be logged in a student portfolio demonstrating mastery of skills and knowledge. Upon completion of this course, proficient students will be prepared to pursue a variety of postsecondary programs in the computer sciences, sit for industry certification, or apply their skills in a capstone *Web Design Practicum*. Standards in this course are aligned with Tennessee State Standards for English Language Arts & Literacy in Technical Subjects and Tennessee State Standards in Mathematics.*

Program of Study Application

This is the third course in the *Web Design* program of study. For more information on the benefits and requirements of implementing this program in full, please visit the Information Technology website at <http://www.tn.gov/education/cte/InformationTechnology.shtml>.

Course Standards

Safety

- 1) Accurately read, interpret, and demonstrate adherence to safety rules, including rules published by the (1) National Science Teachers Association (NSTA), (2) rules pertaining to electrical safety, (3) Internet safety, (4) Occupational Safety and Health Administration (OSHA) guidelines, and (5) state and national code requirements. Be able to distinguish between rules and explain why certain rules apply. (TN Reading 3, 4, 6)
- 2) Throughout the course, practice safe habits and procedures when sharing and sending files, navigating websites, and connecting to servers and networks. As a class, work collaboratively to develop a professionalism policy that outlines rules regarding responsible technology use in the classroom. The policy must adhere to all school and district technology policies. (TN Reading 3, TN Writing 4)
- 3) Determine how companies, organizations, and individuals keep their data secure from theft and identity fraud. Summarize and produce a list of best practices from industry magazines and professional organizations such as the World Wide Web Consortium (W3C). Identify steps for safe use and transfer of data that can applied in the Web Design classroom. (TN Reading 1, 2; TN Writing 4, 7)

Career Exploration

- 4) Investigate opportunities for personal and professional growth in the web design and computer science fields, including but not limited to opportunities to enter design contests, assist with the maintenance or development of the school's website, and participate in initiatives such as the national Hour of Code. In addition, explore postsecondary programs in the computer sciences, such as web design and development, animation and graphics, or website administration, and document the search in the course portfolio. (TN Reading 1, 2)

The Design Process

- 5) Select a website whose content is appropriate and adheres to the course policy, as approved by the instructor. Critically evaluate the site on the merits of its design features, applying knowledge and skills related to webpage composition (learned in *Web Design Foundations*) to critique the following:
 - a. Navigational hierarchy
 - b. Balance
 - c. Color unity
 - d. Typography, formatting, and other aspects of text layout and style
 - e. Compatibility across multiple browsers and devices
 - f. Flow and arrangement of content

Develop a presentation, written paper, or blog post analyzing these elements, supported by screen shots of the website and other specific evidence drawn from the site. Be able to answer the question, "What makes this website compelling, attractive, and functional?" (TN Reading 1, 2, 5, 6, 8; TN Writing 1, 7, 9)

- 6) Synthesize the steps of the web design process learned in previous courses with research into emerging or alternative design models. In groups, produce a sophisticated flowchart, diagram, or other logic model that will serve as a template to guide the development of all projects and activities undertaken in this course. Annotate the model with the inputs, constraints, activities, and target outcomes involved in a given project; demonstrate where inputs flow from one stage of a project to the next. (TN Reading 7, 8, 9; TN Writing 4)

Project Management

- 7) Research how web development teams use project management tools to divide roles and responsibilities among team members, track progress toward goals, and satisfy client specifications. Explore a variety of such tools and develop systems for applying selected tools to projects and assignments in this course. For example, download a Gantt chart template for a spreadsheet software application and use it to assign tasks and monitor deliverables working toward a given deadline. (TN Reading 1, 2, 9; TN Writing 4, 6, 7)

Coding Skills

- 8) Demonstrate technical fluency in a variety of programming and markup languages, including but not limited to HTML, XML, CSS, JavaScript, JQuery, PHP, and/or SQL. Describe the particular functions and environments in which each language operates, detailing the benefits, limitations, and unique features of each. Justify when one programming language would be ideal for a given

project or design solution, developing the recommendation with specific evidence and reasoning. (TN Reading 2, 3, 4; TN Writing 1, 6)

- 9) Correctly apply tags, embed links, manipulate space, customize attributes, and incorporate style elements related to typography, margins, and spanning and padding. Demonstrate the ability to code web page elements such as tables and forms according to the specifications of the client. (TN Reading 3; TN Writing 6)
- 10) Distinguish between different units and measurement systems used in website development. Be able to accurately define terms such as size, aspect ratio, percentage units, and pixels as they relate to specific style commands (i.e., in a cascading style sheet). Given a set of design constraints or client specifications, accurately apply and modify the appropriate units when writing and editing code for objects/text in a programming environment. (TN Reading 3, 7; TN Writing 6; TN Math N-Q)
- 11) Throughout the course, apply, edit, and continually revise code using software approved by the instructor, ranging from proprietary software such as Dreamweaver to simple applications like Microsoft Notepad. Practice teamwork and revision skills by: 1) critiquing the work of peers; and 2) furnishing recommendations for resolving errors in syntax and improving elements of design. Annotate recommendations in the programming environment to facilitate peer review. (TN Reading 3, 4, 5, 6; TN Writing 1, 4, 5, 6)
- 12) Create and edit graphics and other multimedia for web pages, evaluating and customizing their attributes according to client/instructor specifications. For example, write code for a scalable vector graphic (SVG) with a predetermined height, width, shape, and color, using appropriate units in order to maximize visibility and continuity of design. (TN Reading 3; TN Writing 6; TN Math N-Q)
- 13) Summarize the functions of plug-ins for content management systems as well as static websites. Describe a range of plug-ins and justify when they are needed for a specific application. Demonstrate the ability to download and install plug-ins for selected assignments in support of a specified design goal. (TN Reading 2, 3; TN Writing 6)

Basic Troubleshooting and Validation

- 14) Apply basic troubleshooting strategies to resolve errors in syntax, fix broken links, edit distorted images, and align website content for seamless navigation. As part of a course assignment or project, practice troubleshooting techniques to meet the vision or specifications of a mock client. For example, pretend a client complains that the alpha version of his/her website has rendered the dimensions of an interactive form too small for customers to read. Accurately diagnose the problem, then make adjustments to the code to resolve the issue to the client's satisfaction. (TN Reading 3, 5, 7, 8; TN Writing 6, 7)
- 15) Research methods of performing code validation on a completed or in-progress web page. Validate code for compatibility across browsers and devices. Explain the results of the validation test to the class in the form of a brief presentation as would a team of developers. (TN Reading 1, 9; TN Writing 2, 6, 7)

Content Development and Analysis

- 16) Conduct a preliminary investigation of various branding strategies (i.e., social media marketing, web advertising, etc.) used by companies that sell their products and services online. Evaluate selected companies' websites to determine how such strategies are deployed throughout the sites. Describe how one or more of these strategies could be incorporated into a future website for this or another course. (TN Reading 1, 2, 5, 6, 7; TN Writing 4, 7, 8, 9)
- 17) Define web analytics, and discuss the increasingly sophisticated role that analytics play in the marketing and management of content for websites. Interpret simple analytics in the dashboard interface of a content management system such as WordPress. Use quantitative reasoning and appropriate terminology to describe trends, analyze performance, and explain to peers how a website's "reach" can be determined with analytics. (TN Reading 1, 3, 4, 7, 9; TN Writing 2, 9; TN Math N-Q)
- 18) Build on the work of previous Web Design courses and practice writing original web content for a particular audience. Adhere to client specifications regarding tone, length, and style of language, writing in a manner appropriate for the target audience. Regularly edit writing and solicit peer feedback for continuity of message and language. Collaboratively work to refine writing to be suitable for web publication. (TN Writing 4, 5, 6, 7)

Web Hosting and Publishing

- 19) Model the process for setting up a website. Investigate domain name availability, register with a hosting service, and download a File Transfer Protocol (FTP) program. As part of a course assignment or project, demonstrate the ability to upload and organize files onto a server and arrange content to map out a simple multi-page website. Maintain accurate and navigable directories for retrieving and storing files. Incorporate original writing content onto the site, and publish content online for the instructor or class to see on a standard Internet browser. (TN Reading 3, 4; TN Writing 4, 6)

Trends in Web Design and Development

- 20) Explore a range of new and emerging trends in web design and development. A trend could be a new software, strategy, programming language, or phenomenon that has seen rising or widespread usage on the Internet in recent years. Examples include the movement toward responsive design to expand website compatibility; the increasing use of HTML5; or the embedding of social media within websites for the purposes of sharing content or crowdsourcing a product idea. Research one or more of these trends in depth, and compile a presentation or a paper explaining both the technical aspects involved (i.e., how it works on a web page) and the practical applications it has for customers, webmasters, businesses, or other users. (TN Reading 1, 2, 9; TN Writing 2, 7, 8, 9)

Standards Alignment Notes

*References to other standards include:

- TN Reading: [Tennessee State Standards for English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects](#); Reading Standards for Literacy in Science and Technical Subjects 6-12; Grades 11-12 Students (page 62).
 - Note: While not directly aligned to one specific standard, students who are engaging in activities outlined above should be able to also demonstrate fluency in Standard 10 at the conclusion of the course.
- TN Writing: [Tennessee State Standards for English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects](#); Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects 6-12; Grades 11-12 Students (pages 64-66).
 - Note: While not directly aligned to one specific standard, students who are engaging in activities outlined above should be able to also demonstrate fluency in Standards 3 and 10 at the conclusion of the course.
- TN Math: [Tennessee State Standards for Mathematics](#); Math Standards for High School: Number and Quantity.
 - Note: The standards in this course are not meant to teach mathematical concepts. However, the concepts referenced above may provide teachers with opportunities to collaborate with mathematics educators to design project-based activities or collaborate on lesson planning. Students who are engaging in activities listed above should be able to demonstrate quantitative reasoning as applied to specific technical concepts. In addition, students will have the opportunity to practice the habits of mind as described in the eight Standards for Mathematical Practice.
- P21: Partnership for 21st Century Skills [Framework for 21st Century Learning](#)
 - Note: While not all standards are specifically aligned, teachers will find the framework helpful for setting expectations for student behavior in their classroom and practicing specific career readiness skills.